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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,417	05/09/2001	John Canning	CU-2503-RJS	4222
26530	7590	10/10/2003	EXAMINER	
LADAS & PARRY 224 SOUTH MICHIGAN AVENUE, SUITE 1200 CHICAGO, IL 60604			KIANNI, KAVEH C	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/831,417

Applicant(s)

CANNING ET AL.

Examiner

Kevin C Kianni

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 12-32 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-23 and 25-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 20 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Applicant's attempt to traverse restricted by original presentation of claims 22-24, with added new limitations and new dependent claims, in which applicant's response was deemed by the examiner as non-responsive amendment in paper No. 10, is acknowledged. The traversal is on the ground(s) that the restriction fails to indicate how the two groups identified in the restrictions requirement present independent and distinct inventions since claims 12 and 22 are virtually identical. Except for newly presented/amended claims 22, and its dependent claims 23 and 25-31, and 32 which substantially are analogous to originally presented claims 12 and 20-21, respectively, the arguments of the applicant is not found persuasive since as stated in detail in paper no. 10, claim 24 is a different invention that requires different search than that of originally presented claims 12-21; thus the requirement is deemed proper and therefore made FINAL.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-23 and 25-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greene et al. (US 5506925).

Regarding claims 12 and 22, Greene teaches an optical device capable of changing characteristics when subjected to localized heating (shown at least in fig. 1; abstract), an optical waveguide (fig. 1, item waveguide); and a material in contact with the waveguide, wherein the contact area between the waveguide and the material defines an interface (see fig. 1, item substrate material/silicon in contact with the waveguide) which absorbs a predetermined wavelength of light (see col. 3, lines 36-44 and col. 4, lines 56-64; wherein the substrate as shown in fig. 1 is integrated with the wave guide and transfers heat at least partially to the wave guide core/cladding), the localized heating at the interface causing changes in optical properties of a region of the waveguide and occurring as a result of exposing the device to light of the predetermined wavelength at an energy level sufficient to heat the material (see col. 2, lines 57-col. 3, line 4; wherein the heating levels of material is shown in fig. 6), the material being arranged to transfer at least some of the heat to the region of the waveguide at he interface and to minimize optically-induce alterations of the waveguide whilst the device is exposed to the light (see col. 5, lines 28-48, more specifically lines 43-48 wherein the heat is being at least partially transferred through the integrated silicon substrate; see also col. 4, line 54-col. 5, line 6).

However, Greene does not specifically teach that the above change in properties of a region of the waveguide is permanent. It is well known to those of ordinary skill in the art that completely removing the effects of birefringence of a waveguide as well as a region surrounding it known to be permanent change in the properties of the material composing the waveguide or the region surrounding the waveguide, since choosing

such a material for permanently changing of its properties would remove birefringence in the waveguide completely (see col. 3, lines 1-4).

With regard to claims13-15, Greene further teaches wherein the material is located outside and within the waveguide and wherein the material comprises a substrate on which the waveguide is formed (see at least fig. 1, the material comprising both waveguide and base layer located on substrate(s); see also col. 4, line 55-col. 5, line 6).

With regard to claim16, Greene further teaches wherein the device comprises an interferometric system and the waveguide comprises one arm of the interferometric system (see col. 4, lines 1-20).

With regard to claims17, Greene further teaches wherein the localized heating causes thermal relaxation (see col. 1, lines 53-54 and col. 3, lines 1-4; wherein removing birefringence eliminates stress and relaxation), thermal diffusion or induces damage in the material (see col. 4, line 54-col. 5, line 6; see also fig. 6).

With regard to claims18, Greene further teaches wherein the localized heating is used to write a grating structure in the waveguide (see col. 2, lines 35-53; wherein Green's heat radiation using TE/TM shown in fig. 1, causes writing grating structure on the waveguide as in fig. 1 and fig. 4).

Regarding claim 19, Greene teaches an optical device when subjected to localized heating (shown at least in fig. 1; abstract), wherein the device comprises an optical waveguide formed on a substrate (see fig. 1, item waveguide and substrate(s)) selected to absorb a predetermined wavelength of light (see col. 3, lines 36-44), the waveguide being selected to be substantially transparent to the predetermined wavelength (see col. 2, lines 2-8, wherein Green's waveguide is transparent to the selected wavelength light for energy absorption shown in at least fig. 3 and 4), wherein the localized heating causes changes in optical properties of a region of the waveguide, and occurs as a result of exposing the device to light of the predetermined wavelength at an energy level sufficient to heat the substrate (see col. 2, lines 57-col. 3, line 4; wherein the heating levels of material is shown in fig. 6). With respect to Green's teaching of the above change in properties of a region of the waveguide to be permanent, the arguments presented in rejection of claim 1, is analogous in rejection of claim 19.

With regard to claim 20, Greene further teaches wherein the predetermined wavelength of light is a sub-micron wavelength (see col. 3, lines 36-39; wherein the wavelength range of 193 nm is sub-micron wavelength).

With regard to claims 21, Greene further teaches wherein the predetermined wavelength of light is absorbed by the substrate substantially at an interface with the

waveguide (see at least fig. 1, items waveguide, base layer and substrate(s); also col. 5, lines 28-48, more specifically lines 43-48; see also col. 4, line 54-col. 5, line 6).

Regarding claim 23, Greene further teaches wherein the device is arranged to allow at least some of the heat transferred to the interface to vary the inherent stresses at the interface to reduce birefringence in the waveguide (see fig. 1 and see col. 3, lines 1-4).

Regarding claims 25-31, the arguments presented in rejection of claims 13-18 and 20, above, are consecutively analogous in rejection of claims 25-31.

Regarding claim 32, the arguments presented in rejection of claims 19-20, above, are analogous in rejection of claim 32.

### ***Response to Arguments and Amendment***

Applicant's amendment/argument filed on 8/21/2003 have been fully considered and thus the examiner has found applicant's arguments with regard to examining the newly amended claims 22-23 and 25-32 as persuasive; however, the applicant has not made any persuasive argument to include the claim 24 for examination and since claim 24 presents limitations that are different than that of the originally presented claims 12-21 and which requires different search than that of claims 12-21 the requirement

discussed in previous office action holds for not considering the examination of claim 24 and thus the requirement is deemed proper and therefore made FINAL.

■ The examiner kindly advises the applicant to insert some novel features of the invention, such as from that of figure 4, into the independent claims in order to make the case allowable.

***THIS ACTION IS MADE FINAL***

This action in response to applicant's amendment made FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Cyrus Kianni whose telephone number is (703) 308-1216.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (703) 308-4881.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306 (for formal communications intended for entry)

**or:**

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

Kevin Cyrus Kianni  
Patent Examiner  
Group Art Unit 2877

  
Frank Font  
Supervisory Patent Examiner  
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